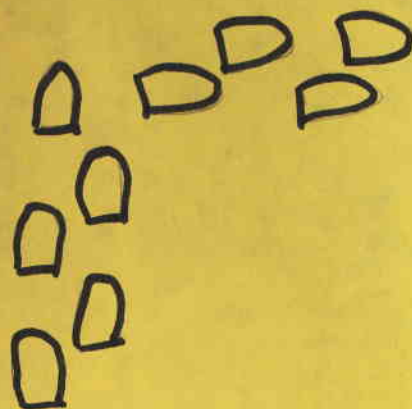


Nana's

House





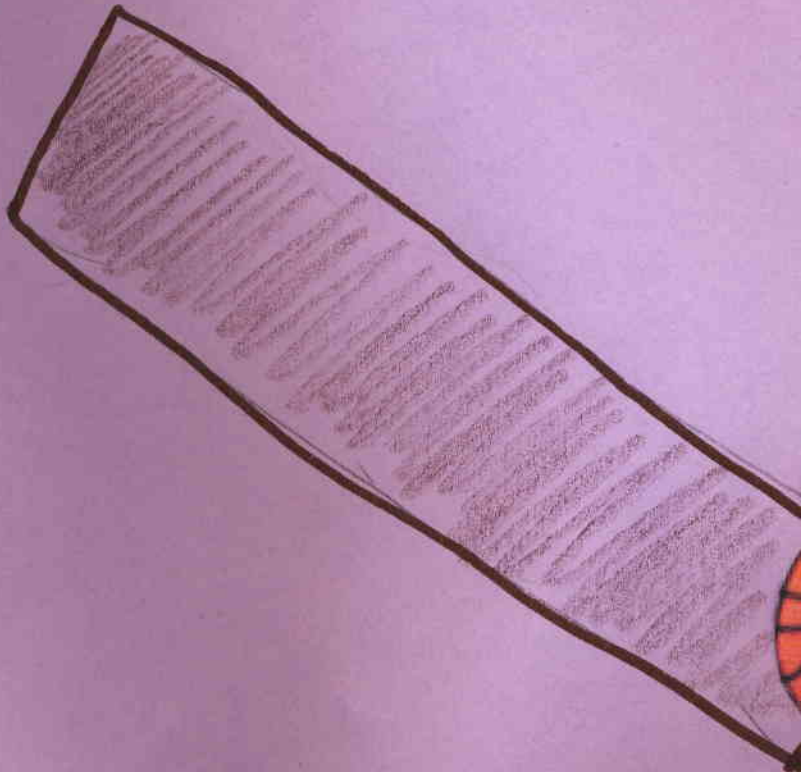
Tyson always walked to his grandma's house. It was his favorite place in the whole wide world. He knew how to get to grandma's house from his house. All he had to do was walk straight, and turn right.



He didn't have a problem with the usual way. It was simple and easy. But Tyson always knew that there was another way to get to grandma. This way had to be faster than the usual way.



Tison counted how many trees they were to grandma's house. When he walked straight it was 9 trees. When he turned right it was five trees. All together they were fourteen trees.

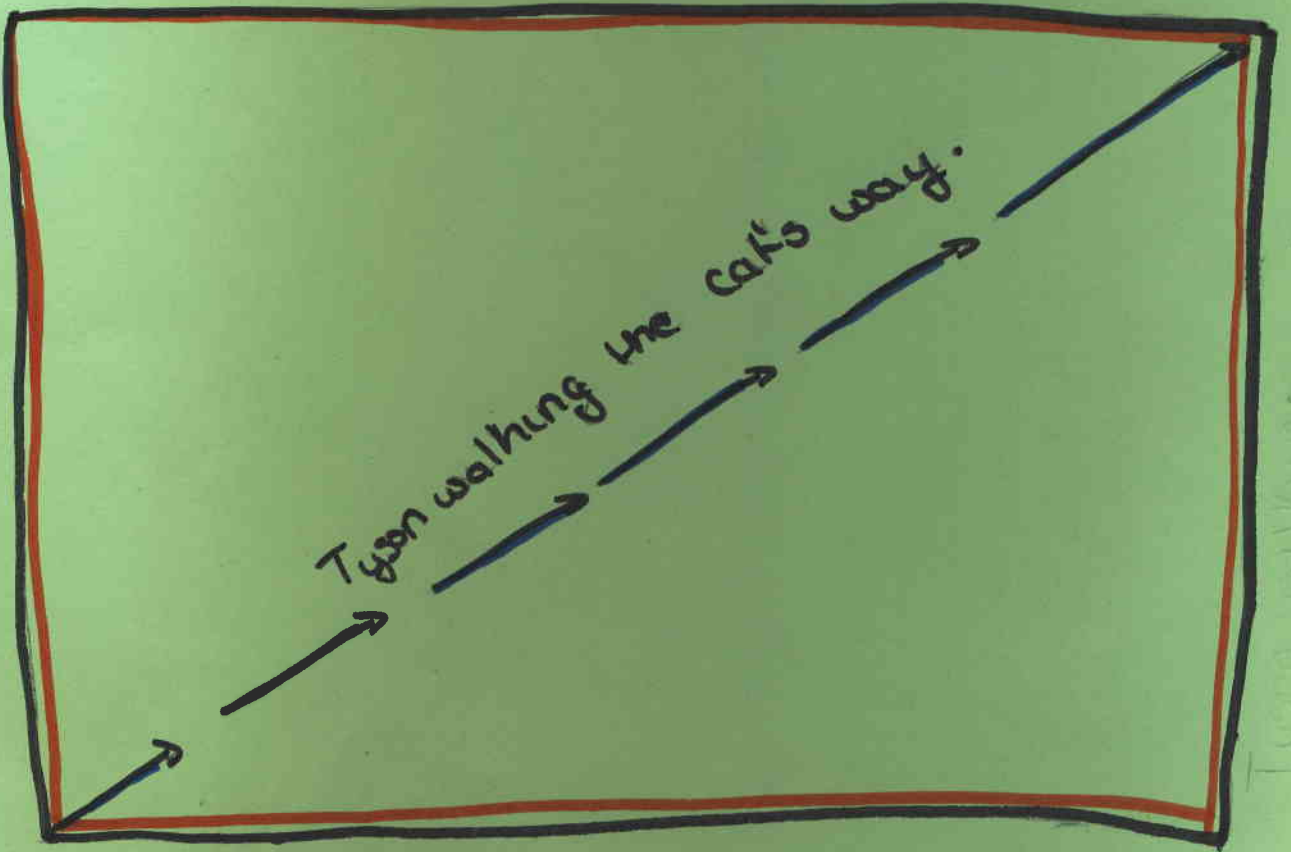


Tyson remember one day when he was chasing his cat, a way he had not seen before. So Tyson follow the cat and found out that the way also led to grandma's house. But Tyson wanted to know which way was faster. The usual way or the new path his cat just shown him.

Tyson walking

Tyson walking the cat's way.

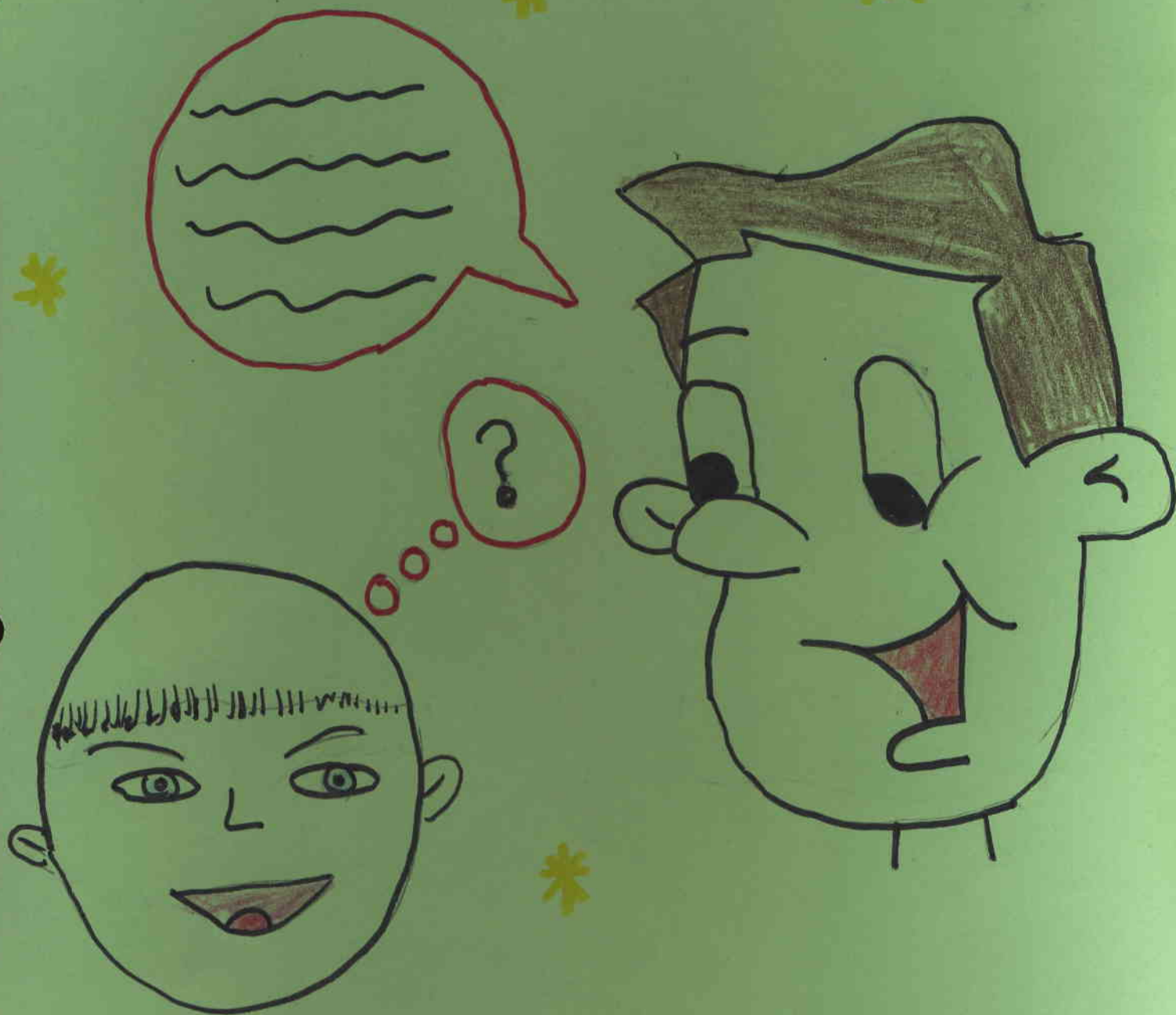
Tyson walking



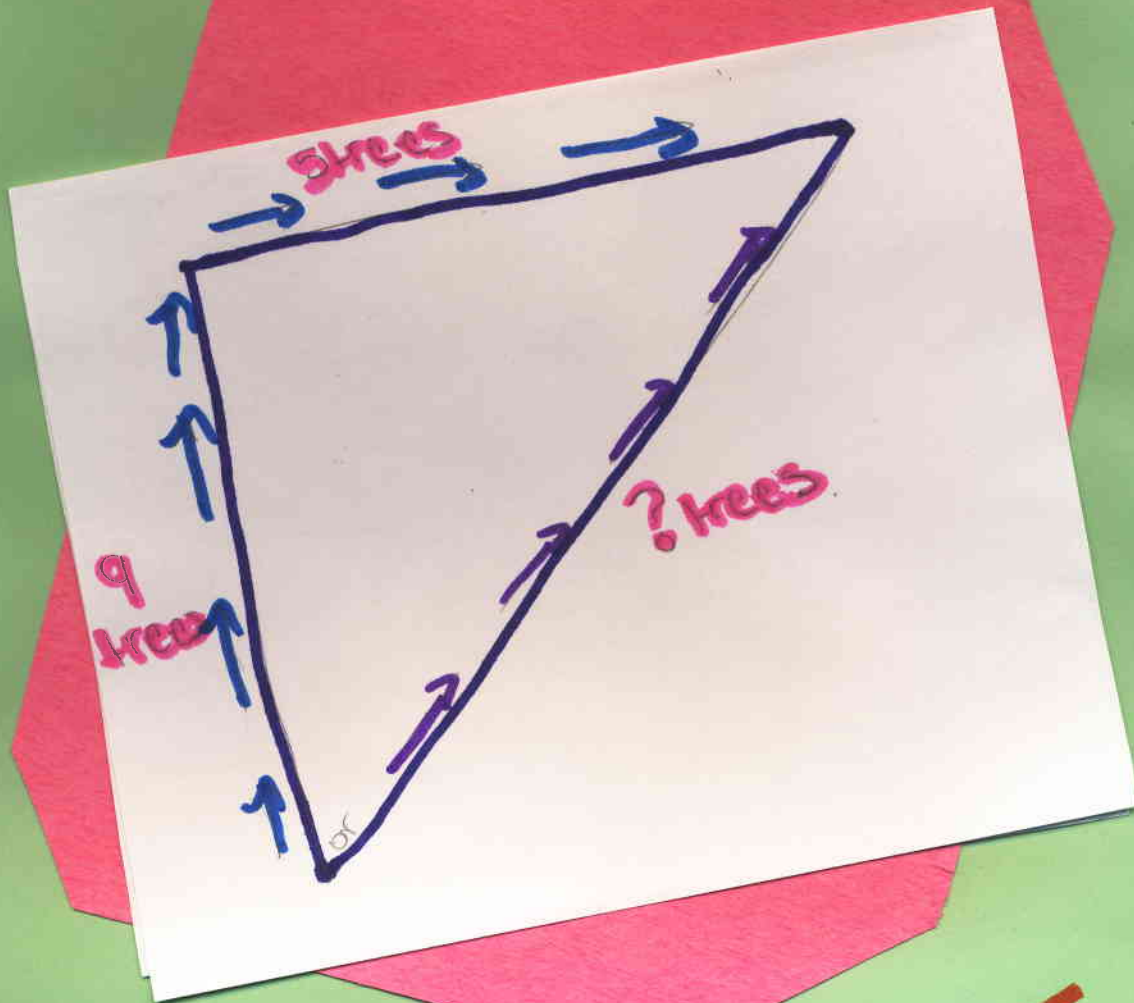
Tyson knew to go to grandma's house he had to go by the rectangular shape parking lot. Usually he would go straight and turn left. The path that his cat had showed him cut straight across the parking lot.



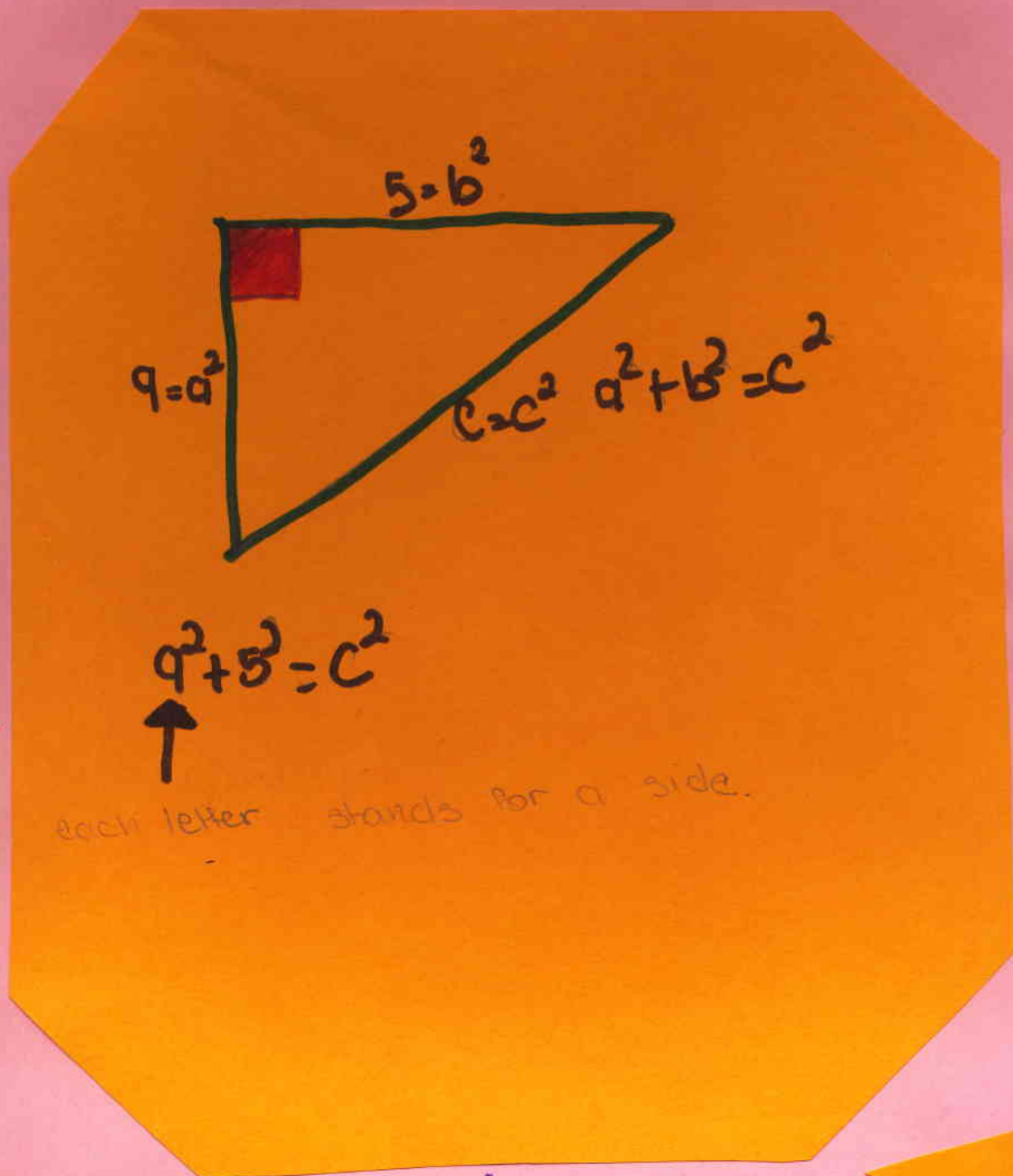
Tyson notice the two paths to grandma's house made a triangular shape. He remembered from his teacher that the triangle had three legs. The first leg was called an adjacent, the second was the opposite and the third was the hypotenuse which is the longest leg of a triangle.



His dad said it was called the Pythagorean Theorem. What is Pythagorean Theorem asked Tyson? His dad replied, Pythagorean Theorem in an equation use to find the length of any side of a right triangle. The formula is $a^2 + b^2 = c^2$. What are the letters for asked Tyson? The letters are for the side of the triangle said his dad.



Tyson took a pencil and paper and drew the picture to grandma's house. He put how many trees they were on each side. Since he didn't know the number of trees on path of the cat he left it blank. The way the cat had shown him was call the hypotenuse. Then his dad said to him "my son it is very easy to find which way is faster".



His dad took Tyson's drawing and wrote the formula on it. He took the number of trees Tyson had given him and plugged it into the equation. $a^2+b^2=c^2$. C stayed without a number because they didn't know how many trees were there.

5²

2+2

As Tyson's dad was working on the problem he explained each step carefully to Tyson.

The little two on top of the number 5² or 9² was called

a square. It means that you have to take the number times it by itself. Like this $5^2 = 5 \times 5$ and $9^2 = 9 \times 9$. you add the product of the two numbers.

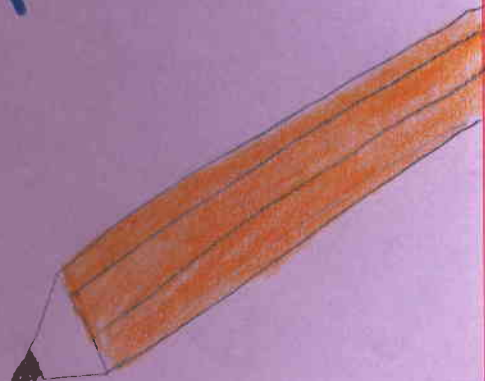
$$9 \times 9 = 81$$

$$5 \times 5 = 25$$

$$81 + 25 = 106$$

Now that you have the sum you have to find the square root. you show this by using the symbol $\sqrt{\quad}$. you write the symbol and then you put the number in it. $\sqrt{106}$.

A+B



9²

Square root means that you look for a number and multiply it by itself and it will give you the number you started with.

EX: $\sqrt{289}$

$15 \times 15 = 225$

Can't be because it isn't 289

$16 \times 16 = 256$

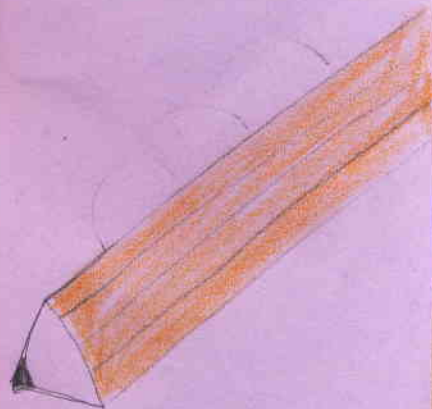
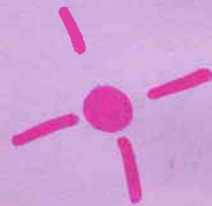
Nope!

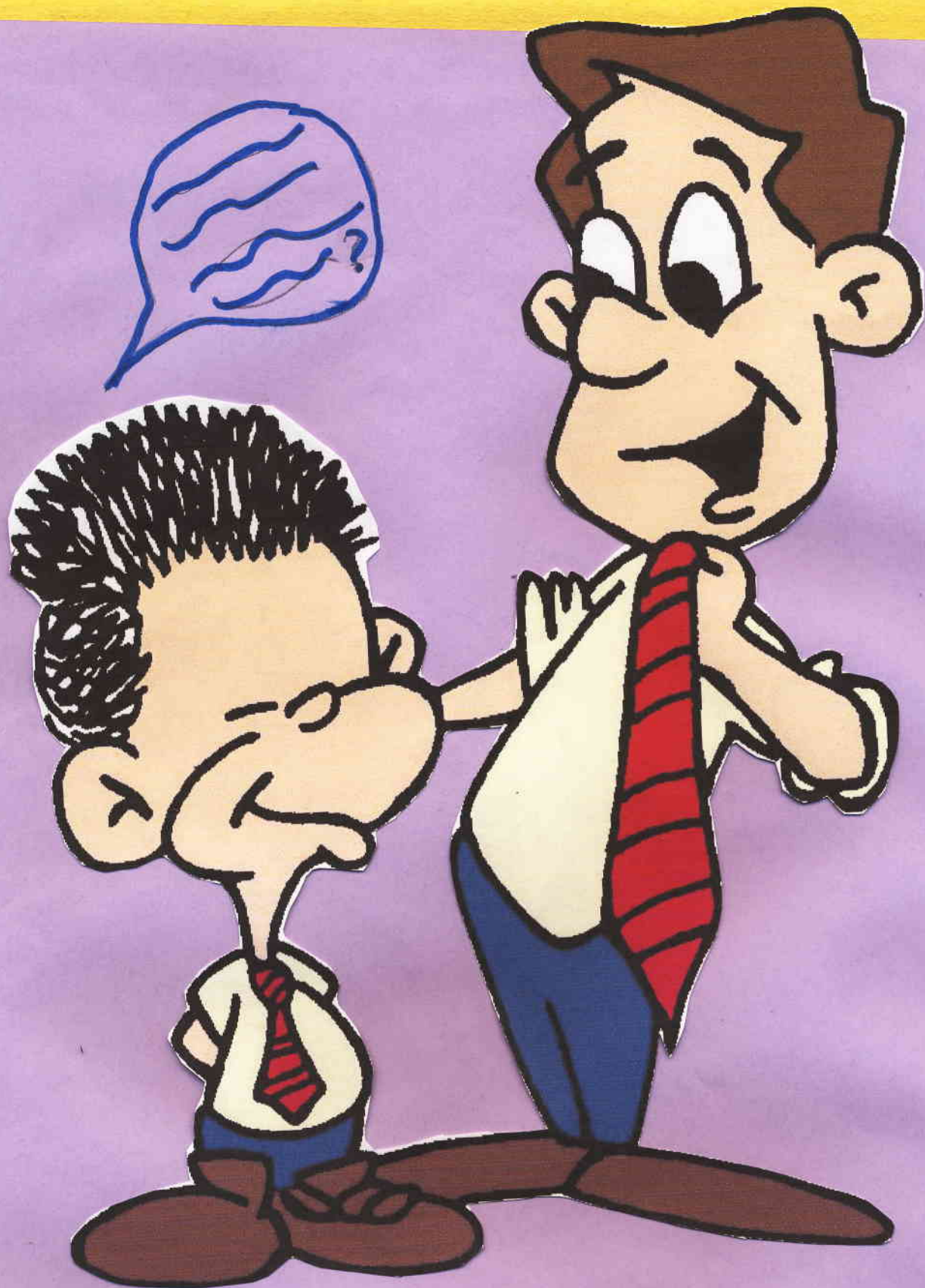
$17 \times 17 = 289$. yes because you got the same number you started with.

So the square root of $\sqrt{289} = 17$.

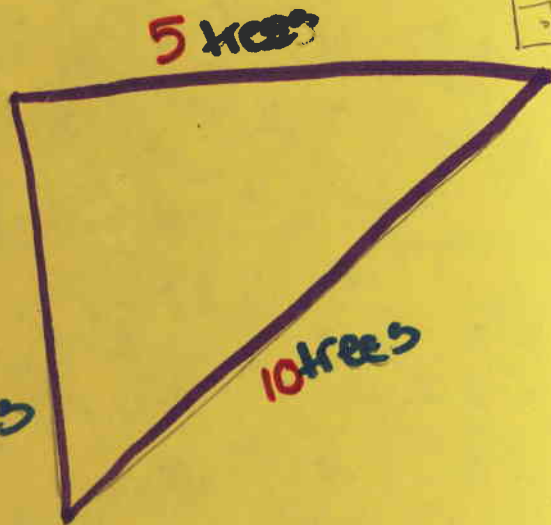
But we are going to go the easy and lazy way. Take the number and put it into your calculator. $\sqrt{106} = 10.29$

~~you~~ you won't always be able to find the exact number. on this case you just take 10 as the answer.



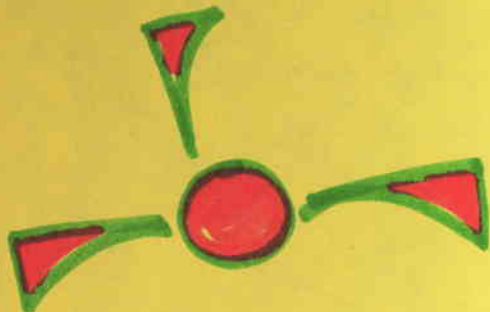


Tyson was a very smart boy. He knew there was a way to figure which path was longer but he didn't know how. He went home and asked his dad about triangular shape and how he could find the longest leg of a triangle. His dad then explains him that there was a formula for such problem.



$9 + 5 = 14$ trees on usual way

10 trees on cat's way.



10 is the number of trees that are on the way to grandma's house, if you take the cat's way said Tyson's dad. Tyson thanked his dad and left. He knew what he had to do to find which way was shorter. He added all the trees on the usual way it was 14 trees. The cat's way had ten trees. Fewer trees meant that the way was shorter.



Tyson was very happy. He could get to grandma's house faster. Ever since Tyson used the Pythagorean Theorem to find the shorter way, he has been taking that way ever since. He loves it so much he named Pythagorean way.